BAR CODE MEDICATION ADMINISTRATION (BCMA)

TECHNICAL MANUAL/SECURITY GUIDE

Version 3.0
February 2004

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Department of Veterans Affairs
VIST**A** Health Systems Design & Development

Revision History

Each time this manual is updated, the Title Page lists the new revised date and this page describes the changes. Either update your existing manual with the Change Pages document, or replace it with the updated manual.

Note: The Change Pages document may include unedited pages needed for two-sided copying. Only edited pages display the patch number and revision date in the page footer.

Date	Revised Pages	Patch Number	Description
01/2005	6-7 14 20-21	PSB*3*4	– Increased the total for the BCMA V. 3.0. routines to equal 64. (p.6) – Updated the "BCMA V. 3.0 Routines Installed on to **V**IST**A** Server" example to include the PSBOPF routine. (p. 7). – Added description for new PSB READ ONLY security key. (p.14) – Added new Glossary entries for PSB READ ONLY and Read-Only BCMA. (p. 20-21)
10/2004	6-7	PSB*3*3	– Increased the total for the BCMA V. 3.0 routines to equal 63. (p. 6) – Updated the "BCMA V. 3.0 Routines Installed on to **V**IST**A** Server" example to reflect the inclusion of routines PSBML2, PSBML3, and PSBMLLKU to the **V**IST**A** Server. (p. 7).
02/2004			Original Released BCMA V. 3.0 Technical Manual/Security Guide

Implementation and Maintenance

Minimum Required Packages

Before installing BCMA V. 3.0, make sure that your system includes the following Department of Veterans Affairs (VA) software packages and versions (those listed or higher).

Example: Minimum Required Packages and Versions

Package	Minimum Version Needed
Inpatient Medications	5.0
Kernel	8.0
MailMan	8.0
Nursing	4.0
Order Entry/Results Reporting	3.0
Pharmacy Data Management	1.0
RPC Broker (32-bit)	1.1
Toolkit	7.3
VA FileMan	22.0
Vitals/Measurements	5.0

Installation Time Estimates

IMPORTANT:

You should install and test BCMA in your test accounts *before* installing in your production accounts.

On average, it takes approximately two minutes to install BCMA V. 3.0. This estimate was provided by a few of our BCMA V. 3.0 Beta Test sites. Actual times may vary, depending on how your site is using its' system resources.

Suggested time to install: non-peak requirement hours. During the install process, PC Client users should not be accessing the Client Software.

Implementation and Maintenance

Resource Requirements

This section summarizes the (approximate) number of resources required to install BCMA V. 3.0.

- Routines   64
- Globals   1 (^PSB)
- Files   5 (53.66-53.79)
- ^PSB Size (in bytes)   Unit Dose = 300 x # of Medications Administered
IV = 2100 x # of IV Bags Administered
- FTEE Support   .2
- FTEE Maintenance   .2

Response Time Monitor

BCMA V. 3.0 does not include Response Time Monitor hooks.

Laptops and Bar Code Scanners

The approximate requirements for laptops and bar code scanners depend on the number of Inpatient areas, at your site, that use BCMA V. 3.0 for administering active medication orders. The BCMA Development Team recommends that your site have a minimum of three laptops and three scanners for each ward.

Printers

Your site should provide printers for creating patient wristbands and medication bar code labels, and for handling Missing Dose Requests sent from BCMA V. 3.0 to the Pharmacy.

Unit Dose Label Printer Devices

BCMA V. 3.0 includes the *Label Print* [PSBO BL] option for printing individual or batch Unit Dose bar code labels. It is specifically coded to the Zebra-brand printers using the Zebra Programming Language (ZPL). Model 105SE was used in the development of the labels. Routine PSBO BL uses site-specific printers or terminals to produce labels.

IV Label Printer Devices

Inpatient Medications V. 5.0 provides a menu option for printing individual or batch IV bar code labels. See the section "Interfacing with the Bar Code Label Printer" in the *Inpatient Medications V. 5.0 Technical Manual/Security Guide* for detailed setup information.

Implementation and Maintenance

Files Required to Run BCMA V. 3.0

BCMA V. 3.0 uses the following files installed on the **V**_IST_**A** Server. "Journaling" is recommended.

- ^PSB (53.66, BCMA IV Parameters
- ^PSB (53.68, BCMA Missing Dose Request
- ^PSB (53.69, BCMA Report Request
- ^PSB (53.78, BCMA Medication Variance Log
- ^PSB (53.79, BCMA Medication Log

Note: You can learn more about these files by generating a list with file attributes using VA FileMan.

Routines Installed

Review the listing below to learn the routines installed on to your site's **V**_IST_**A** Server during the installation of BCMA V. 3.0. The first line of each routine briefly describes its general function.

Note: You can use the *Kernel First Line Routine Print* [XU FIRST LINE PRINT] option to print a list containing the first line of each PSB routine.

Routine Mapping

At this time, we do *not* offer any recommendations for routine mapping. However, if you choose to map the BCMA V. 3.0 package routines, you will need to bring your system down, and then restart it to load the new routines into memory.

Example: BCMA V. 3.0 Routines Installed on to V_IST_A Server

```
PSBALL     PSBAPIPM   PSBCHIVH   PSBCHKIV   PSBMD      PSBML      PSBML1
PSBML2     PSBML3     PSBMLEN    PSBMLEN1   PSBMLHS    PSBMLLKU   PSBMLTS
PSBMLU     PSBMLVAL   PSBO       PSBO1      PSBOAL     PSBOBL     PSBODL
PSBODL1    PSBODO     PSBOHDR    PSBOMD     PSBOMH     PSBOMH1    PSBOMH2
PSBOML     PSBOMM     PSBOMV     PSBOPE     PSBOPF     PSBOPI     PSBOPM
PSBOVT     PSBOWA     PSBPAR     PSBPARIV   PSBPOIV    PSBPRN     PSBRPC
PSBRPC1    PSBRPC2    PSBRPC3    PSBRPCMO   PSBRPCXM   PSBSAGG    PSBSVHL7
PSBUTL     PSBVAR     PSBVDLIV   PSBVDLPA   PSBVDLPB   PSBVDLTB   PSBVDLU1
PSBVDLU2   PSBVDLU3   PSBVDLUD   PSBVDLVL   PSBVITFL   PSBVT      PSBVT1
PSBXMRG

     64 routines
```

Security Features

Defining Mail Groups in BCMA

In BCMA V. 3.0, you can define two "Mail Groups" for notifying Pharmacy, IRM, and other internal staff about errors and Missing Dose Requests. This section describes how you can create mail groups, and the purpose of each group.

Creating Mail Groups for BCMA V. 3.0

Creating mail groups for BCMA V. 3.0 involves using the V*IST*A Mail Group *Enter/Edit* [XMUSER] option to set the TYPE field to PUBLIC. Once this task is accomplished, you can then use the Parameters Tab of the GUI BCMA Site Parameters application to define the mail groups that you created.

Mail Group Types in BCMA V. 3.0

This section describes the mail groups that you can define using the Parameters Tab of the GUI BCMA Site Parameters application.

- **Due List Error:** Generates an E-mail message for any medication order that BCMA V. 3.0 cannot resolve for the BCMA VDL placement, and sends it to the mail group members. An example might include no administration times entered for a Continuous order.

- **Missing Dose Notification:** Generates an E-mail message for any Missing Dose Request entered using the BCMA V. 3.0 CHUI or GUI menu options. The E-mail is sent to all members of the mail group, specifically Pharmacy, as a "fail safe" even if the designated Missing Dose printer is not functioning.

Security Features

Assigning Menus to Users

Use this section to assign menus to BCMA V. 3.0 CHUI and GUI users, if they have not already been assigned.

CHUI Version

Refer to this section for BCMA V. 3.0 CHUI menu assignments.

- **PSB MGR:** assign to a manager
- **PSB PHARMACY:** assign to all Inpatient Pharmacists
- **PSB NURSE:** assign to all clinicians and other personnel who administer active medication orders

GUI Version

Refer to this section for BCMA V. 3.0 GUI menu assignments.

- **PSB GUI CONTEXT – USER:** assign to all clinicians and other personnel who administer active medication orders

Allocating Security Keys to Users

Refer to this section to allocate the following security keys to appropriate site personnel.

- **PSB MANAGER:** designates the holder as a manager
- **PSB INSTRUCTOR:** designates the holder as a nursing instructor supervising student nurses
- **PSB STUDENT:** designates the holder as a student nurse, requiring that an instructor also sign on to BCMA V. 3.0 at the same time
- **PSB CPRS MED BUTTON:** designates the holder as a nurse who can document administered verbal- and phone-type STAT and NOW (One-Time) orders using the CPRS Med Order Button on the BCMA VDL
- **PSB READ ONLY:** designates the holder as a user that only has Read-Only access to BCMA. Note that users with Read-Only access will also be required to have the PSB GUI CONTEXT – USER secondary menu option.

Establishing Electronic Signature Codes

You may establish Electronic Signatures Codes using the Kernel *Electronic Signature code Edit* [XUSESIG] option.

Note: For easier access by all users, this option is tied to the Common Options, under the *User's Toolbox* [XUSERTOOLS] submenu.

Glossary

Learning BCMA V. 3.0 Lingo

The alphabetical listing, in this section, is designed to familiarize you with the many acronyms and terms used throughout this guide.

Example: Alphabetical Listing of BCMA V. 3.0 Acronyms and Terms

Acronym/Term	Definition
Archive	To transfer files from a computer onto long-term storage.
BCMA Clinical Reminders	A marquee located in the lower, right-hand corner of the VDL that identifies PRN medication orders needing effectiveness documentation. The setting is based on the "PRN Documentation" site parameter, and applies to current admissions or the site parameter timeframe (whichever is greater). A mouse-over list displays when the pointer is placed over the PRN Effectiveness Activity, or a full list is available by double clicking on the Activity.
CHUI	**Ch**aracter-based **U**ser **I**nterface.
Client	An architecture in which one computer can get information from another. The Client is the computer that asks for access to data, software, or services.
CPRS	**C**omputerized **P**atient **R**ecord **S**ystem. A **V***IST***A** software application that allows users to enter patient orders into different packages from a single application. All pending orders that appear in the Unit Dose and IV packages are initially entered through the CPRS package. Clinicians, Managers, Quality Assurance Staff, and Researchers use this integrated record system.
Data Dictionary	Also called "DD," the dictionary that contains file attributes.
DBIA	**D**ata**b**ase **I**ntegration **A**greement. A formal understanding between two or more application packages which describes how data is shared or how packages interact. This Agreement maintains information between package Developers, allowing the use of internal entry points or other package-specific features.
FileMan	The **V***IST***A** database management system.
GUI	**G**raphical **U**ser **I**nterface. The type of interface chosen for BCMA V. 3.0.
IV	A medication given intravenously (within a vein) to a patient from an IV bag. IV types include Admixture, Chemotherapy, Hyperal, Piggyback, and Syringe.
Journaling	A record of changes made in files and messages transmitted. It is quite useful when recovering previous versions of a file before updates were made, or to reconstruct updates if an updated file gets damaged.

Glossary

The alphabetical listing, in this section, is designed to familiarize you with the many acronyms and terms used throughout this guide.

Example: Alphabetical Listing of BCMA V. 3.0 Acronyms and Terms

Acronym/Term	Definition
MAH	**M**edication **A**dministration **H**istory. A patient report that lists a clinician's name and initials, and the exact time that an action was taken on an order (in a conventional MAR format). Each order is listed alphabetically by the orderable item. The date column lists three asterisks (***) if a medication was Discontinued.
MAR	**M**edication **A**dministration **R**ecord. The traditional, handwritten record used for noting when a patient received a medication. BCMA V. 3.0 replaces this record with an MAH.
NOW Order	A medication order given ASAP to a patient, entered as a One-Time order by Providers and Pharmacists. This order type displays for a fixed length of time on the VDL, as defined by the order Start and Stop Date/Time.
Patient Transfer Notification	A message that displays when a patient's record is opened or the Unit Dose or IVP/IVPB Medication Tab is viewed for the first time. This message indicates that the patient has had a movement type (usually a transfer) within the site-definable parameter, and the last action for the medication occurred before the movement, but still within the defined timeframe.
PRN Order	The Latin abbreviation for **P**ro **R**e **N**ata. A medication dosage given to a patient on an "as needed" basis.
PSB CPRS MED BUTTON	The name of the security "key" that must be assigned to nurses who document verbal- and phone-type STAT and NOW (One-Time) medication orders using the CPRS Med Order Button on the BCMA VDL.
PSB INSTRUCTOR	The name of the security "key" that must be assigned to nursing instructors, supervising nursing students, so they can access user options within BCMA V. 3.0.
PSB MANAGER	The name of the security "key" that must be assigned to managers so they can access the PSB Manager options within BCMA V. 3.0.
PSB READ ONLY	The name of the security "key" that must be assigned to users that can only access BCMA in Read-Only mode. Users who are assigned the PSB READ ONLY security key will never be able to administer medications or perform any actions against a patient's medical record. The PSB READ ONLY security key overrides all other BCMA security keys.

Glossary

Learning BCMA V. 3.0 Lingo (cont.)

The alphabetical listing, in this section, is designed to familiarize you with the many acronyms and terms used throughout this guide.

Example: Alphabetical Listing of BCMA V. 3.0 Acronyms and Terms

Acronym/Term	Definition
PSB STUDENT	The name of the security "key" that must be assigned to nursing students, supervised by nursing instructors, so they can access user options within BCMA V. 3.0. This key also requires that a nursing instructor sign on to BCMA.
Purge	To delete a set of data, and all references to the data.
Read-Only BCMA	A mode in which BCMA can be accessed that provides non-medication administering users the ability to view a patient's VDL and print reports, without performing any actions against a patient's medical record.
RPC	**R**emote **P**rocedure **C**all. A procedure stored on the **V***IST***A** Server, which is executed to return data to the Client.
RPC Broker	A Client/Server System within the VA's Veterans Health Information Systems and Technology Architecture (**V***IST***A**) environment. It enables client applications to communicate and exchange data with M Servers.
Security Keys	Used to access specific options within BCMA V. 3.0 that are otherwise "locked" without the security key. Only users designated as "Holders" may access these options.
Server	An architecture in which one computer can get information from another. The Server, which can be anything from a personal computer to a mainframe, supplies the requested data or services to the Client.
STAT Order	A medication order given immediately to a patient, entered as a One-Time order by Providers and Pharmacists. This order type displays for a fixed length of time on the VDL, as defined by the order Start and Stop Date/Time.
VDL	**V**irtual **D**ue **L**ist. An on-line "list" used by clinicians when administering active medication orders (i.e., Unit Dose, IV Push, IV Piggyback, and large-volume IVs) to a patient. This is the Main Screen in BCMA V. 3.0. **Note:** This is called BCMA VDL in this guide to eliminate confusion with the **V***IST***A** Documentation Library (VDL) also mentioned in this guide.
VISTA	**V**eterans Health **I**nformation **S**ystems and **T**echnology **A**rchitecture.
Ward Stock	Unit Dose and IV medications that are "stocked" on an ongoing basis on wards and patient care areas. They are packaged in a ready-to-use form or compounded by the medication administrator.
ZPL	**Z**ebra **P**rogramming **L**anguage.